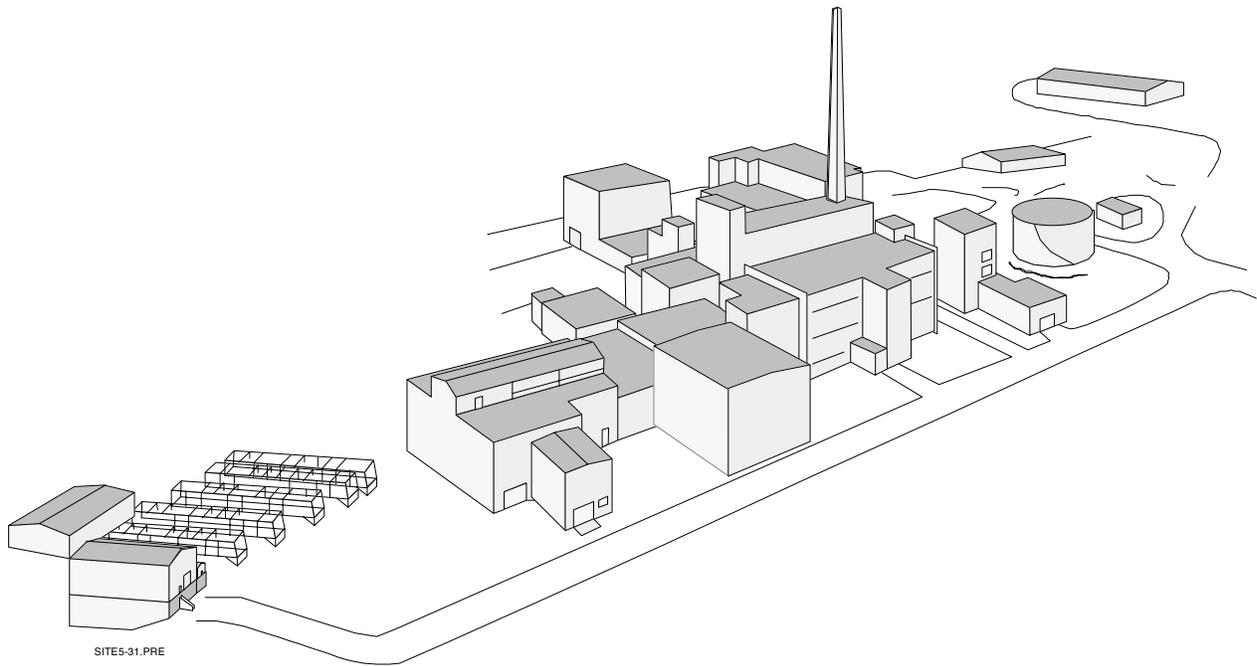

**WEST VALLEY DEMONSTRATION PROJECT
SITE ENVIRONMENTAL REPORT
CALENDAR YEAR 1999**



**West Valley Nuclear Services Company
and
URS/Dames & Moore**

Prepared for:
U.S. Department of Energy
Ohio Field Office
West Valley Demonstration Project
Under Contract DE-AC24-81NE44139

June 2000
10282 Rock Springs Road
West Valley, New York 14171-9799



Department of Energy
Ohio Field Office
West Valley Demonstration Project
10282 Rock Springs Road
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To The Reader:

This report, prepared by the U.S. Department of Energy (DOE) West Valley Demonstration Project (OH/WVDP), summarizes the environmental protection program at the West Valley Demonstration Project (WVDP) for calendar year 1999. Consistent with prior years, this report is being made available to the public as soon as possible and well in advance of DOE's required release date of October 1, 2000.

Monitoring and surveillance of the WVDP facilities are conducted in order to protect public health and safety and the environment. The quality assurance protocols applied to the environmental monitoring program by the DOE ensure the validity and accuracy of the monitoring data. Also included in this report are groundwater and ambient air data from the New York State Energy Research and Development Authority's (NYSERDA) New York State-licensed Disposal Area (SDA).

Air, surface water, groundwater, soil, and biological samples are collected and analyzed for radiological and nonradiological constituents in order to evaluate the potential effects of activities at the WVDP. Calculated doses to the hypothetical maximally exposed off-site individual from air- and waterborne radiological releases in 1999 were less than one percent of the DOE limit. Radionuclide concentrations in biological samples were at levels near to or statistically identical to background concentrations.

Results of nonradiological (chemical) tests of surface water and soil samples showed no effects on the off-site environment. Nonradiological liquid effluent releases are controlled and permitted through the New York State Pollutant Discharge Elimination System (SPDES). Releases in 1999 were below regulatory limits with no exceptions.

In 1999 the Project continued the transition from high-level waste vitrification to preparation for facility cleanup. Monitoring of treated water effluents and facility ventilation system emissions verified that the dose received by off-site residents continues to be minimal.

If you have any questions or comments about the information in this report, please contact the West Valley Nuclear Services Company (WVNS) Manager of Communications, John D. Chamberlain, at (716) 942-4610, or complete and submit the enclosed survey.

Sincerely,

Barbara A. Mazurowski

B. A. Mazurowski, Director
West Valley Demonstration Project

West Valley Demonstration Project

Site Environmental Report

for

Calendar Year 1999

Prepared for the U.S. Department of Energy

Ohio Field Office

West Valley Demonstration Project Office

under contract DE-AC24-81NE44139

June 2000

West Valley Nuclear Services Co.

10282 Rock Springs Road

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Preface

Environmental monitoring at the West Valley Demonstration Project (WVDP) is conducted by the West Valley Nuclear Services Company (WVNS), under contract to the U.S. Department of Energy (DOE). The data collected provide an historical record of radionuclide and radiation levels from natural and manmade sources in the survey area. The data also document the quality of the ground-water on and around the WVDP and the quality of the air and water discharged by the WVDP.

This report represents a single, comprehensive source of off-site and on-site environmental monitoring data collected during 1999 by environmental monitoring personnel. The environmental monitoring program and results are discussed in the body of this report. The monitoring data are presented in the appendices. Appendix A contain maps of on-site and off-site sampling locations. Appendix B is a summary of the site environmental monitoring schedule. Appendices C through J contain summaries of data obtained during 1999 and are intended for those readers interested in more detail than is provided in the main body of the report. Appendix K lists the environmental permits and regulations pertaining to the WVDP. Appendix L lists data from the New York State-licensed Disposal Area (SDA).

Requests for additional copies of the 1999 Site Environmental Report and questions regarding the report should be referred to the WVDP Communications Department, 10282 Rock Springs Road, West Valley, New York 14171 (telephone: 716-942-4610). Site environmental reports also are available electronically at <http://www.wvdp.com> under the Westinghouse/WVNS Site Contractor WVDP History page.

SUMMARY OF CHANGES TO THE 1999 WVDP SITE ENVIRONMENTAL REPORT FROM THE 1998 SITE ENVIRONMENTAL REPORT

This report, prepared by the U.S. Department of Energy (DOE) West Valley Demonstration Project office, summarizes the environmental protection program at the West Valley Demonstration Project (WVDP) for calendar year 1999. Monitoring and surveillance of the facilities used by the DOE for the WVDP are conducted in order to protect public health and safety and the environment. The quality assurance protocols applied to the environmental monitoring program by the DOE ensure the validity and accuracy of the monitoring data. Also included in this report are groundwater and ambient air data from the New York State Energy Research and Development Authority's (NYSERDA) New York State-licensed Disposal Area (SDA).

Changes in content for the 1999 WVDP annual Site Environmental Report are summarized below. The format and organization of the report are the same as the 1998 Site Environmental Report.

REVISIONS AND ADDITIONS

- The Compliance Summary has been updated to reflect the 1999 regulatory compliance status.
- Continued progress in vitrifying the residual high-level liquid radioactive waste and in preparing the Project facilities for decontamination and decommissioning is addressed in the Executive Summary, the Environmental Compliance Summary, and in Chapter 1.
- Data and text have been updated throughout the report to reflect the CY 1999 environmental monitoring program and compliance status. Tables, graphs, and maps of sampling locations, analytes, and frequencies have been updated. Some references also have been updated.
- Chapter 1 summarizes 1999 activities at the WVDP. Two new graphs were added to show long-term trends of decreasing exposure rates near two on-site waste storage areas: the chemical process cell waste storage area and the drum cell. Graphs of performance indicators were updated to include the 1999 performance results.
- Chapter 2 includes a discussion of 1999 radiological results of sampling of air emissions and water effluents as compared to DOE concentration guides. The 1999 results from near-site locations are also compared to results from background locations in order to evaluate the relative effects of site activities.
- Chapter 3 was updated to summarize and discuss results of the 1999 groundwater monitoring program, including continued monitoring, characterization, and mitigation of the strontium-90 plume on the north plateau. The pilot-scale permeable treatment wall that was installed in 1999 in the eastern lobe of the strontium-90 plume and the 1999 evaluation of screen corrosion in wells in the sand and gravel unit are described. One data table (formerly Table E-12), which summarized chromium and nickel data, was removed from Appendix E because the special monitoring for these parameters was completed before CY 1999.

- Chapter 4 provides an assessment of dose to the general public resulting from exposure to radiation and radionuclides released by the Project to the surrounding environment in 1999. As in previous years, the WVDP was found to be in compliance with all applicable effluent radiological guidelines and standards.
- Chapter 5 was updated to include 1999 changes to the WVDP quality assurance program and to summarize assessments of the environmental monitoring program. In 1999 the EPA's National Exposure Research Laboratory, Environmental Sciences Division radiological crosscheck program was privatized and samples were not distributed. The EPA's nonradiological crosscheck program also was privatized and no samples were available. The two tables that formerly summarized results from these crosschecks (J-3 and J-4 in the 1998 Site Environmental Report) were dropped from the 1999 Site Environmental Report.
- One new figure was added to Appendix A: Figure A-13 shows the projected 2000 census population by sector within 80 kilometers of the site.
- Changes to the environmental monitoring program in 1999 are summarized at the beginning of Appendix B.

SPECIAL ISSUES

- In 1999 the WVDP applied for DOE Voluntary Protection Program STAR designation. In early 2000, STAR status for the WVDP was announced.
- For the second successive year since the DOE began operations at the WVDP in 1982, no SPDES exceptions were noted.
- Negotiations with NYSDEC regarding additional SPDES permit monitoring requirements and limits for mercury were initiated in 1999. It is expected that a final SPDES permit that addresses mercury will be issued in 2000. A draft SPDES permit including storm water monitoring, submitted for public comment in June 1997, is still pending.
- No unplanned radiological releases to the off-site environment occurred in 1999.
- Corrective actions to bring environmental monitoring software and hardware into year-2000 compliance were completed in September 1999. No problems as a result of the millennium date change were noted in the WVDP environmental monitoring program.
- In 1999 the DOE approved the design and construction of a remote-handled waste facility.
- In 1999 the NRC commissioners approved the License Termination Rule as the decommissioning criteria for the WVDP. A draft policy statement describing the decision was issued on December 3, 1999.

ERRATA and CORRIGENDA
 West Valley Demonstration Project
 Site Environmental Report
 Calendar Year 1998

Uranium calculations: A problem with uranium isotope calculations by a vendor laboratory was detected in 1998 through rigorous quality control analysis of the reported data. The values reported were higher than the true values and affected samples from 1995 through 1998. Most concentrations did not differ by more than 0.5%. Corrections to the calculations have been made and updated values have been entered in the WVDP environmental database. The tables in the 1998 Site Environmental Report that were affected by these changes are Tables C-1, D-7, and E-14.

Uncertainties in calculating operating times for the air sampler that ran intermittently at the contact size-reduction facility (ANCSFRK, Table D-6) resulted in total radionuclide release estimates that were approximately 6% lower than reported in 1998. Revised release estimates for this location would not have affected the reported dose estimate.

Other errata:

Location	Analyte/Item	1998 Report Read:	Should Read:
page 2-5	Units in Tables 2-1 and 2-2	Bq/m ³	Bq/L
page 2-5	Table 2-2, WNSWAMP, average	0.10±9.98E-01Bq/L	1.01±0.01E+02Bq/L
page C-3	WNSP001, U-238	1.40±0.06E-06 Ci	1.40±0.06E-04 Ci
page C-4	WNSP001, U-238	1.51±0.07E-06 Ci	1.40±0.06E-04 Ci
page E-26	Units in Figure E-1	µCi/mL	standard units
page E-26	Units in Figure E-2	µCi/mL	µmhos/cm@25°C

Any questions about these corrigenda may be directed to the Manager of Communications, John D. Chamberlain, West Valley Nuclear Services Co., at (716) 942-4610.